



# Landslides and Mud Flows

Landslides and mudflows usually strike without warning. The force of rocks, soil, or other debris moving down a slope can devastate anything in its path.

Take the following steps to be ready.

## Before a landslide

- Get a ground assessment of your property.
- Your county geologist or county planning department may have specific information on areas vulnerable to land sliding. Consult a professional geotechnical expert for opinions and advice on landslide problems and on corrective measures you can take.

## Insurance

- Mudflow is covered by flood insurance policies from the National Flood Insurance Program. Flood insurance can be purchased through a local insurance agency.

## Minimize home hazards

- Plant ground cover on slopes to stabilize the land, and build retaining walls.
- In mudflow areas, build channels or deflection walls to direct the flow around buildings.
- Remember: If you build walls to divert debris flow and the flow lands on a neighbor's property, you may be liable for damages.

## Make evacuation plans

- Plan at least two evacuation routes since roads may become blocked or closed.
- In case family members are separated from one another during a landslide or mudflow (that is a real possibility during the day when adults are at work and children are at school), have a plan for getting back together.
- Ask an out-of-state relative or friend to serve as the "out-of-area" contact. After a disaster it's often easier to call long distance than to make local calls. Make sure everyone knows the name, address and phone number of the contact person.

## Learn to recognize the landslide warning signs

- Doors or windows stick or jam for the first time.
- New cracks appear in plaster, tile, brick or foundations.
- Outside walls, walks, or stairs begin pulling away from the building.
- Slowly developing, widening cracks appear on the ground or on paved areas such as streets or driveways.
- Underground utility lines break.
- Bulging ground appears at the base of a slope.
- Water breaks through the ground surface in new locations.
- Fences, retaining walls, utility poles, or trees tilt or move.
- You hear a faint rumbling sound that increases in volume as the landslide nears. The ground slopes downward in one specific direction and may begin shifting in that direction under your feet.

## Sinkholes

- A sinkhole occurs when groundwater dissolves a vulnerable land surface, such as limestone, causing the land surface to collapse from a lack of support.

## WASHINGTON MILITARY DEPARTMENT



### Emergency Management Division

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## Landslides and Mud Flows (continued)

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### During a landslide:

#### If inside a building

- Stay inside.
- Take cover under a desk, table, or other piece of sturdy furniture.

#### If outdoors:

- Try to get out of the path of the landslide or mudflow.
- Run to the nearest high ground in a direction away from the path.
- If rocks and other debris are approaching, run for the nearest shelter such as a group of trees or a building.
- If escape is not possible, curl into a tight ball and protect your head.

### After a landslide

- Remember that flooding may occur after a mudflow or a landslide.
- Stay away from the slide area. There may be danger of additional slides.
- Check for injured and trapped persons near the slide area. Give first aid if trained.
- Remember to help your neighbors who may require special assistance – infants, elderly people, and people with disabilities.
- Listen to a battery-operated radio or television for the latest emergency information.
- Check for damaged utility lines. Report any damage to the utility company.
- Check the building foundation, chimney, and surrounding land for damage.
- Replant damaged ground as soon as possible since erosion caused by loss of ground cover can lead to flash flooding.
- Seek the advice of geotechnical experts for evaluating landslide hazards or designing corrective techniques to reduce landslide risk.

### Prevention tips

- Investing in preventive steps now, such as planting ground cover (low growing plants) on slopes, or installing flexible pipe fitting to avoid gas or water leaks, will help reduce the impact of landslides and mudflows in the future. For more information on prevention, contact your local emergency management office.